




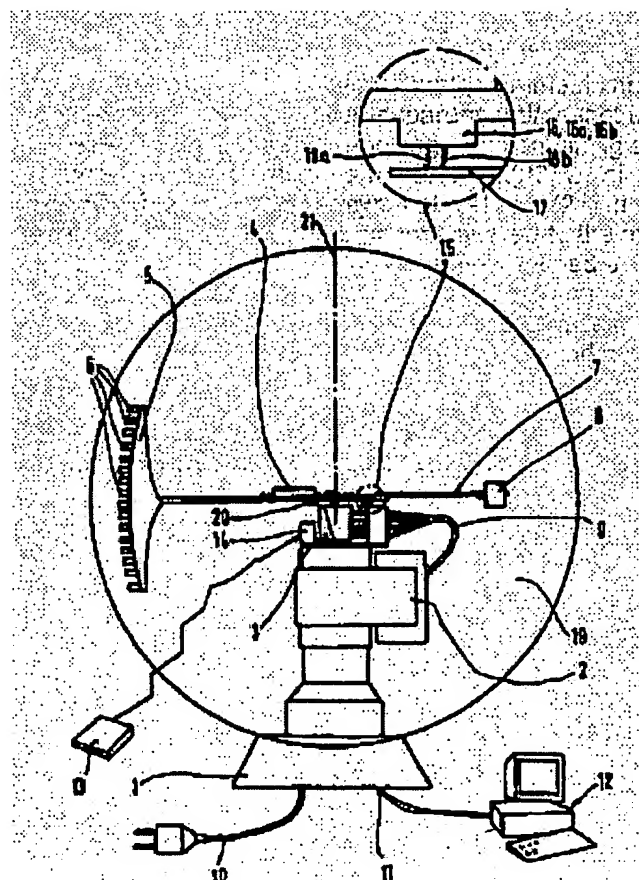


**DEVICE FOR DISPLAYING ALPHANUMERIC CHARACTERS AND SYMBOLS****Patent number:** WO9750070**Publication date:** 1997-12-31**Inventor:** RONKHOLZ KARL HEINZ (DE)**Applicant:** LUMINO GMBH LICHT ELEKTRONIK (DE);  
RONKHOLZ KARL HEINZ (DE)**Classification:****- International:** G09F9/33**- european:** G09F9/33**Application number:** WO1997EP03145 19970617**Priority number(s):** DE19962011155U 19960626; DE19962021296U  
19961207**Also published as:** EP1004110 (A1)  
 EP1004110 (B1)**Cited documents:** US4689604  
 WO9012354  
 EP0156544**Report a data error here****Abstract of WO9750070**

The invention concerns a device for displaying alphanumeric characters and/or symbols, with a rotationally symmetric housing (19) of a transparent and/or light transparent material; the housing (19) containing an electric motor (2) with a motor shaft (20) which revolves around a symmetrical axis (21); a carrier (5) which is rotationally fixed to the motor shaft (20) and on which is/are attached at least one row of light-emitting diodes or groups of light-emitting diodes (6) that are substantially perpendicular to the motor shaft (20); and a circuit board (4) with a control circuit for the light-emitting diodes (6). To improve control of the display device and the LED's and to create a technically simple series production, the display device also has an opto-electronic measuring device (15) made of a transmitter and receiver, to measure the rotating speed of the carrier (5) for synchronising control of the light-emitting diodes (6) with the rotating speed of the carrier (5), the transmitter and receiver of which are fixed to a rotating structural part of the device on the one hand to a stationary structural part of the device on the other hand, opposite and at a short distance apart. With the use of software the signal picked up by the receiver can be converted into a clear square-wave signal, free from external interference so that the LED-control can be synchronised with the exactly or almost exactly measured rotating speed of the carrier (5). The device according to the invention also contains a mechanical balancing element (7, 8) opposite the carrier (5) in relation to the symmetrical axis (21), wherein the balancing element (7, 8) is a rod (7) of any cross-section, the operating length of which can



be shortened, the rod being raised into a substantially horizontal position during operating.

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